Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Verilink Corporation Petition for Rulemaking to Amend the Commission's Part 68 Rules to Authorize Regulated Carriers to Provide Certain Line Build Out Functionality as a Part of Regulated Network Equipment on Customer Premises	)	RM-8158

COMMENTS IN SUPPORT OF PETITION FOR RULEMAKING

BellSouth Telecommunications, Inc. ("BellSouth") files these comments in support of the above styled Petition for Rulemaking filed by Verilink Corporation on December 14, 1992.

I. SUMMARY OF COMMENTS

The Petition asks the Commission to initiate a rulemaking to amend Part 68 of the Commission's rules to authorize line build out ("LBO") functionality to be provided in the transmission path of 1.544 mbps ("DS1") services as a component of regulated network equipment located on customer premises. The Petition states that this amendment will bring the Commission's rules in line with the current direction of technical standards for digital services and equipment as reflected in the American National Standards Institute ("ANSI") standard for the DS1 Metallic Interface. BSR T1.405 ("ANSI standard").

BellSouth strongly supports the Petition. Over four years ago, BellSouth filed a petition seeking similar relief from the Commission's CPE rules.[1] Although the Bureau ultimately denied BellSouth's Petition, the Bureau invited those who wish to initiate a rulemaking proceeding on this issue to provide a more detailed analysis of the service efficiencies and customer benefits to be gained by implementation of the ANSI standard.[2] Verilink's Petition sets forth such an analysis. The information presented in Verilink's Petition strongly supports the need for a rule change and is consistent with BellSouth's experience regarding DS1 service provisioning and maintenance.

BellSouth offers the following information in further support of the Petition.

II. ADDITIONAL SUPPORTING INFORMATION

A. Relevant Cost Savings And Benefits Of Proposed Rule Changes.

Under the current rules (i.e., LBO provisioned by CPE), BellSouth engineers the DS1 network service route and determines the required LBO out pulse value. BellSouth provisions this LBO value in the loopback path of the

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[1] BellSouth Corporation Petition for Declaratory Ruling, or Alternatively, Request for Limited Waiver, filed December 9, 1988. (DA 88-1966).

[2] In the Matter of BellSouth's Petition for Declaratory Ruling, or Alternatively, Request for Limited Waiver of the CPE Rules to Provide Line Build Out Functionality as a Component of Regulated Network Interface Connectors on Customer Premises, ("Bureau Order"), 6 FCC Rcd 3336, released June 6, 1991.

network interface unit (NIU) for loopback testing purposes, and then advises the DS1 services customer so the customer can set the CPE at the appropriate LBO output pulse option.[3]

Both the end user customer and the network provider would realize operational and maintenance efficiencies under the proposed rule change. Network provision of LBO would eliminate the need for the joint engineering activity described above. It would also eliminate the need for such coordination when the customer reconfigures or replaces DS1 CPE. Moreover, network provision of LBO would avoid the situation where an end user customer disrupts network services by inadvertently changing the LBO value to the incorrect setting during CPE replacement or maintenance activities. Identification and resolution of these problems are costly to both network providers and customers in terms of both service disruptions and increased administrative expense.

Network provision of LBO would place the responsibility of setting and controlling LBO in the hands of the party that would be most affected by its misapplication. If a customer incorrectly sets the LBO value in a manner that introduces inordinately high signal levels into the network,

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[3] The Commission's current Part 68 rules require registered terminal equipment used with DS1 service to be capable of optionally delivering three different output pulses, selectable at the time of installation. 47 C.F.R. Section 68.308 (h)(2)(ii). The three selectable output pulses are commonly referred to as options A, B and C. 47 C.F.R. Section 68.308 (h)(2)(ii) (A), (B) and (C).

that customer may adversely affect the services of other customers without adversely affecting the customer's own services.[4] Thus, a customer who is unsure of the appropriate LBO setting for its CPE may have little incentive to ensure that the LBO value is set at the right output option. The proposed rule change allows the carrier to better protect the operational integrity of the services of other customers and to ensure that the appropriate LBO setting is maintained and adjusted as changes in the network dictate.

B. Relationship Between ANSI DS1 Interface Standard And Part 68.

The new ANSI standard can easily be implemented without affecting current interconnection practices under Part 68. In particular, the ANSI standard can be satisfied simply by setting the LBO option in existing registered CPE to the "A" (0dB) LBO option.[5]

While not necessary to implement the ANSI standard, it may be desirable to eliminate the requirement for LBO in DS1 CPE. Part 68 is only intended to protect the network from harm that could otherwise occur as a result of CPE functionality entering the network. If the LBO

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[4] This condition typically results in the phenomena known as "cross talk" or noises heard in a channel when currents from one channel interfere with those of another channel occupying a common sheath or cable.

[5] See, n.3, supra. for further explanation of LBO optional settings.

functionality is to be provided by the network, there is no reason to continue the current LBO functionality requirements in Part 68.

For a transition period, it would be desirable for carriers to continue today's practice of instructing the customer as to the appropriate LBO setting for those embedded installations where network provisioned LBO has not yet been installed. Once the carrier has implemented network provisioned LBO, customers would always be instructed to implement the "A" option on their CPE. At the expiration of this transition period, the carrier would discontinue the practice of instructing the customer as to the appropriate LBO setting because such coordination would no longer be required. In those cases where newly installed DS1 CPE continues to include LBO functionality, the Commission's rules should require manufacturers and customers to set the LBO value at the "A" (0 dB) option upon installation. This will ensure that the LBO contained in the CPE does not interfere with the operation and management of network provided LBO.

C. Network Provision Of LBO Would Not Result In Additional Cost To CPE Users.

Eliminating LBO as a Part 68 requirement may result in a slight cost savings to the CPE manufacturer. If sufficient to justify design modification to existing CPE equipment, the total cost to users of such equipment could decrease by an equally small amount. As to installed

equipment, the ability to set the LBO value at the "A" option eliminates the need to impose any additional costs upon CPE users to implement the ANSI standard. Thus, network provision of LBO should not result in additional cost to CPE users. To the contrary, there is the potential of a small cost savings and CPE users will be able to avoid the administrative and service delay costs associated with the previously discussed joint engineering problems.

Carriers are already providing LBO in network equipment at customer premises for loopback testing purposes. It seems feasible that the same LBO could be used to control the level of the customer's signal in the transmit path (when the loopback device is not in the loopback mode). Allowing the use of this same functionality in the transmit path may involve some modification to loopback devices, but BellSouth believes that any such change would be minor and is not likely to result in any increase in cost to either the carrier or the DS1 customer.

D. Network Provision Of LBO Will Have No Adverse Impact On Competition In The CPE Market.

As pointed out by Verilink,[6] the LBO function constitutes only a small portion of CPE electronics. Its elimination will not cause a significant drop or any increase in the price of CPE. Thus, there should be no material affect on CPE competition.

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[6] Petition at p. 14.

From the customer's point-of-view, network provision of LBO should positively impact competition in the CPE market. The elimination of joint engineering and service problems associated with inadvertent customer error in setting the LBO value should improve the customer's overall perception of the total value and quality of service received from DS1 CPE. Network provision of LBO will simplify the provisioning process for the customer, will reduce the incidence of crosstalk and other DS1 service problems, and will better accommodate the customer's use of a "hot standby" CSU to backup live DS1 circuits. Furthermore, it is becoming increasingly important to customers that provisioning procedures be simplified to enable expedited installation of DS1 service. Network provision of LBO promotes all of these customer benefits.

E. The ANSI Standard Is Based Upon Sound Technical Considerations And Requirements.

In the Bureau's Order inviting parties to submit additional information in support of a rulemaking addressing implementation of the ANSI standard, the Bureau asked the following questions:

> Explain how the specific signal levels proposed by the ANSI standard were arrived at, especially the 12.0 to 19.0 dBm level for NCTE signals at the interface. Are the ANSI minimum signal strength levels higher than current signal strengths to the network interface? If so, why? If not, why not?[7]

[7] Bureau Order at para. 30.

The ANSI standard specifies signal levels using two criteria: a mask within which signal pulses must fit, and the power at two different frequencies in an "all-ones" signal. The second specification requires that the power in a narrow band centered at 772 kHz be in the range of 12.0 to 19.0 dBm. The exact origin of this specification is unclear, but it is also found in the Commission's existing Part 68 rules (See, entry for "Output pulse option A" in table found at 47 C.F.R. Section 68.308 (h)(2)(iv)).

The minimum signal strength levels specified in the ANSI standard are not any higher than the current signal strengths to the network interface. Part 68 imposes specification requirements on CPE, whereas the ANSI standard is concerned with the strength of signals crossing at the network interface (demarcation point) which may be some distance from the CPE.

To account for loss and distortion arising from transmitting pulses through a distance of wiring, (i.e., emanating from CPE to the network), the ANSI standard first defines a "standard pulse", and then relates the pulse at the interface to this "standard pulse." The signal levels for the "standard pulse" are exactly the same as required for registered CPE. The ANSI standard goes on, however, to allow for some loss in customer wiring between the CPE and the network interface. The end result is that signal level specifications at the network interface are lower than those

presently found in Part 68. Typically, particularly since adoption of the Commission's new demarcation rules,[8] the network interface (i.e., the network demarcation point) is located some additional distance from the CPE.

F. DS1 Service Is Not Like Other Services Covered By Part 68.

It should be emphasized that DS1 services is the only service covered under Part 68 that allows a customer to control the signal level into the network. Many of the performance problems associated with DS1 services are not evident at the lower signal frequencies associated with other Part 68 services. The DS1 line rate (1.544 mbps) is over twenty-five times faster than the next lowest service speed (56 kbps) covered by Part 68. Problems such as crosstalk between cable conductors that must be avoided via control of signal amplitude are not normally a problem with low speed services. Accordingly, there is ample reason to treat DS1 services differently from other digital and analog services under Part 68.

III. CONCLUSION

For the above reasons, the Commission should grant the Petition and initiate a rulemaking as soon as possible. Such action is long overdue. The number of DS1 customers has increased significantly over the past few years. These customers are "end-users" in the true sense of the word.

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[8] See, 47 C.F.R. Section 68.3.

They do not have the desire nor the technical expertise to become directly involved in setting LBO options in CPE which are critical to protection of the network. As explained above, the LBO functionality can be more efficiently and appropriately provided by the network, resulting in considerable benefits to customer, carriers and CPE providers.

Respectfully submitted,

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CERTIFICATE OF SERVICE

I hereby certify that I have this 8th day of February, 1993 serviced all parties to this action with a copy of the foregoing COMMENTS by placing a true and correct copy of same in the United States mail, postage prepaid, addressed to:

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